CLAIMS

1.(Amended) An elasticity measuring device for being inserted into a canal part of a human body and for measuring elasticity of the inner side of the canal part of the human body, said device comprising:

a probe base for being inserted into the canal part of the human body;

at least one probe arranged around said probe base, which is located near the inner side of the canal part of the human body when the device is inserted into the canal part and is driven to press onto and return from the biological tissue;

a resilient arm member having one end and the other end, said one end supporting said at least one probe thereon and said the other end being firmly fixed to said probe base;

a stress detection sensor provided on said probe, for detecting hysteresis of the stress applied to the biological tissue based on the repulsion from the biological tissue when said probe is driven to press onto and return from the biological tissue; and

a deviation detection sensor for detecting the hysteresis of changes in distance of said stress detection sensor with respect to said probe base,

wherein the elasticity of the biological tissue is

measured based on the stress and deviation magnitude characteristics when the probe is driven to press onto and return from the biological tissue.

2. (Amended) An elasticity measuring device for biological tissue according to claim 1, in which said resilient arm member comprises a plurality of spring members, a plurality of said probes being symmetrically arranged around said probe base through corresponding spring members.

3. An elasticity measuring device for biological tissue according to claim 2, in which said deviation detection sensor comprises a pair of light emitting element and light receiving element, said light emitting element being secured on a surface of said probe base and said light receiving element being secured on said spring member so as to oppose to each other.

4. An elasticity measuring device for biological tissue according to claim 1, in which said stress detection sensor comprises a distortion guage.

5. (Amended) An elasticity measuring device for being inserted into a canal part of a human body and for measuring elasticity of the inner side of the canal part of the human body, said device comprising:

a probe base for being inserted into the canal part of the human body;

at least one probe arranged around said probe base,

which is located near the inner side of the canal part of

the biological tissue when the device is inserted into the canal part and is driven to press onto and return from the biological tissue;

a resilient arm member having one end and the other end, said one end supporting said at least one probe thereon and said the other end being firmly fixed to said probe base;

a hardness sensor provided on said probe, for outputting a signal indicative of hardness of the biological tissue;

a hardness detection means for detecting the hardness of the biological tissue based on the signal from said hardness sensor; and

a deviation detection sensor for detecting the deviation magnitude of said hardness sensor with respect to said probe base,

wherein the elasticity of the biological tissue is measured based on the hardness and deviation characteristics when the probe is driven to press onto and return from the biological tissue.

6. An elasticity measuring device for biological tissue according to claim 5, wherein said hardness sensor comprises:

a vibration element; and

a vibration detector, and wherein said hardness detection means comprises:

an input terminal connected to said vibration detector;

an output terminal connected to said vibration element;

an amplifier having an input coupled to said input terminal; and

a phase shift circuit connected between an output terminal of said amplifier and said output terminal, for changing a frequency and making a phase difference zero (0) when there occurs a phase difference between input waveforms applied to said vibration element and output waveforms forwarded from said vibration detector,

wherein, while a resonant state of the closed loop circuit including said hardness sensor and the biological tissue is maintained, hardness of the biological tissue is detected by said frequency change caused by the change in hardness of the biological tissue.

7. An elasticity measuring device for biological tissue according to claim 1 or 5, in which said probe comprises a balloon which is hydraulically expandable and contractable and is driven to press onto and return from the biological tissue.